AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

Please cancel Claim 1-5.

6.   (Currently Amended)   An energy saving circuit that communicates with a receiver of a first physical layer of a first network device, comprising:

a sense circuit that communicates with said receiver and that generates a receive signal when connection activity that exceeds a first threshold is detected by said receiver, wherein said sense circuit enters a sense state and powers down said first physical layer when said sense circuit is reset,

wherein said energy saving circuit powers down said first physical layer when said receiver does not detect said connection activity for a first predetermined period to reduce power consumption of said first physical layer;

an autonegotiation circuit that communicates with said sense circuit and that powers up said first physical layer and attempts to negotiate a connection with a second physical layer of a second network device when said sense circuit generates said receive signal; and

a first timer that generates a first signal after a first period and that is reset when said receive signal is generated by said sense circuit,

wherein if said first timer times out before autonegotiation is complete, said sense circuit powers down said first physical layer and returns to said sense state.

7.   (Currently Amended)   The energy saving circuit of claim 6 further comprising a link circuit that triggers a link state when autonegotiation is complete and a link with said second physical layer is established.

8.   (Original)   The energy saving circuit of claim 7 wherein said link circuit generates a link lost signal when said link is lost.

9.   (Currently Amended) An energy saving circuit that communicates with a receiver of a first physical layer of a first network device, comprising:

a sense circuit that communicates with said receiver and that generates a receive signal when connection activity that exceeds a first threshold is detected by said receiver, wherein said sense circuit enters a sense state and powers down said first physical layer when said sense circuit is reset, and

wherein said energy saving circuit powers down said first physical layer when said receiver does not detect said connection activity for a first predetermined period to reduce power consumption of said first physical layer; and

an autonegotiation circuit that communicates with said sense circuit and that powers up said first physical layer and attempts to negotiate a connection with a second physical layer of a second network device when said sense circuit generates said receive signal, wherein said sense circuit enters a sense state and powers down said first physical layer when said sense circuit is reset, and wherein said sense circuit

includes a second timer that communicates with a transmitter and that is reset when said receive signal is generated by said sense circuit.

10.   (Original) The energy saving circuit of claim 9 wherein when said second timer times out, said transmitter is turned on and generates a pulse.

11.   (Original) The energy saving circuit of claim 10 wherein after said transmitter generates said pulse, said transmitter is turned off and said sense circuit returns to said sense state.

12.   (Original)   The energy saving circuit of claim 11 wherein said second timer has a second period that is longer than a period of fast link pulse bursts.

13.   (Currently Amended)   An energy saving circuit that communicates with a receiver of a first physical layer of a first network device, comprising:

a sense circuit that communicates with said receiver and that generates a receive signal when connection activity that exceeds a first threshold is detected by said receiver,

wherein said energy saving circuit powers down said first physical layer when said receiver does not detect said connection activity for a first predetermined period to reduce power consumption of said first physical layer; and

a switching circuit that senses a connection configuration of said second physical layer and that adjusts a connection configuration of said first physical layer to match said connection configuration of said second physical layer.

14. (Currently Amended) The energy saving circuit of claim 6 further comprising a status indicator that generates a status signal to notify said first network device of a power status of said first physical layer.

Please cancel Claims 15-34.

35. (Currently Amended) An energy saving circuit that communicates with a receiver of a first physical layer of a first network device, comprising:

sensing means for communicating with said receiver and for generating a receive signal when connection activity that exceeds a first threshold is detected by said receiver, wherein said sensing means enters a sense state and powers down said first physical layer when said sensing means is reset,

wherein said energy saving circuit powers down said first physical layer when said receiver does not detect said connection activity for a first predetermined period to reduce power consumption of said first physical layer;

autonegotiation means for communicating with said sense circuit and for powering up said first physical layer and attempting to negotiate a connection with a second physical layer of a second network device when said sensing means generates said receive signal; and

first timing means for generating a first signal after a first period, wherein said first timing means is reset when said receive signal is generated by said sensing means,

wherein if said first timing means times out before autonegotiation is complete, said sensing means powers down said first physical layer and returns to said sense state.

36. (Currently Amended) The energy saving circuit of claim 35 further comprising link means for triggering a link state when autonegotiation is complete and a link with said second physical layer is established.

37. (Original) The energy saving circuit of claim 36 wherein said link means generates a link lost signal when said link is lost.

38. (Currently Amended) An energy saving circuit that communicates with a receiver of a first physical layer of a first network device, comprising:

sensing means for communicating with said receiver and for generating a receive signal when connection activity that exceeds a first threshold is detected by said receiver, wherein said sensing means enters a sense state and powers down said first physical layer when said sensing means is reset,

wherein said energy saving circuit powers down said first physical layer when said receiver does not detect said connection activity for a first predetermined period to reduce power consumption of said first physical layer;

autonegotiation means for communicating with said sense circuit and for powering up said first physical layer and attempting to negotiate a connection with a second physical layer of a second network device when said sensing means generates said receive signal, wherein said sensing means enters a sense state and powers down said first physical layer when said sensing means is reset; and

second timing means for communicating with a transmitter and that is reset when said receive signal is generated by said sensing means.

39. (Original) The energy saving circuit of claim 38 wherein when said second timing means times out, said transmitter is turned on and generates a pulse.

40. (Original) The energy saving circuit of claim 39 wherein after said transmitter generates said pulse, said transmitter is turned off and said sensing means returns to said sense state.

41. (Original) The energy saving circuit of claim 40 wherein said second timing means has a second period that is longer than a period of fast link pulse bursts.

42. (Currently Amended) An energy saving circuit that communicates with a receiver of a first physical layer of a first network device, comprising:

sensing means for communicating with said receiver and for generating a receive signal when connection activity that exceeds a first threshold is detected by said receiver;

wherein said energy saving circuit powers down said first physical layer when said receiver does not detect said connection activity for a first predetermined period to reduce power consumption of said first physical layer; and

switching means for sensing a connection configuration of said second physical layer and for adjusting a connection configuration of said first physical layer to match said connection configuration of said second physical layer.

43.   (Currently Amended)   The energy saving circuit of claim 35 further comprising status indicator means for generating a status signal to notify said first network device of a power status of said first physical layer.

Please Cancel Claims 44-63.

64.   (Currently Amended)   A method for saving energy in a first physical layer of a first network device, comprising:

generating a receive signal using a sense circuit when connection activity that exceeds a first threshold is detected by a receiver;

powering down said first physical layer when said receiver does not detect said connection activity for a first predetermined period to reduce power consumption of said first physical layer;

powering up said first physical layer and attempting to negotiate a connection with a second physical layer of a second network device using an autonegotiation circuit when said sense circuit generates said receive signal;

entering a sense state of said sense circuit;

powering down said first physical layer when said sense circuit is reset;

generating a first signal that resets said sense circuit after a first period using a first timer;

resetting said first timer when said receive signal is generated by said sense circuit;

powering down said first physical layer using said sense circuit if said first timer times out before autonegotiation is complete; and

returning said sense circuit to said sense state.

65. (Currently Amended)   The method of claim 64 further comprising triggering a link state when autonegotiation is complete and a link with said second physical layer is established.

66. (Original)   The method of claim 65 further comprising generating a link lost signal when said link is lost.

67. (Currently Amended) A method for saving energy in a first physical layer of a first network device, comprising:

generating a receive signal using a sense circuit when connection activity that exceeds a first threshold is detected by a receiver;

powering down said first physical layer when said receiver does not detect said connection activity for a first predetermined period to reduce power consumption of said first physical layer;

powering up said first physical layer and attempting to negotiate a connection with a second physical layer of a second network device using an autonegotiation circuit when said sense circuit generates said receive signal;

entering a sense state of said sense circuit;

powering down said first physical layer when said sense circuit is reset,

wherein said sense circuit includes second timer for communicating with a transmitter and that is reset when said receive signal is generated.

68.   (Original)   The method of claim 67 further comprising turning on said transmitter and generating a pulse when said second timer times out.

69.   (Original)   The method of claim 68 further comprising turning off said transmitter and transitioning said sense circuit to said sense state after said transmitter generates said pulse.

70.   (Original)   The method of claim 69 wherein said second timer has a second period that is longer than a period of fast link pulse bursts.

71.   (Currently Amended)   A method for saving energy in a first physical layer of a first network device, comprising:

generating a receive signal using a sense circuit when connection activity that exceeds a first threshold is detected by a receiver; and

powering down said first physical layer when said receiver does not detect said connection activity for a first predetermined period to reduce power consumption of said first physical layer;

powering up said first physical layer and attempting to negotiate a connection with a second physical layer of a second network device using an autonegotiation circuit when said sense circuit generates said receive signal;

sensing a connection configuration of said second physical layer; and

adjusting a connection configuration of said first physical layer to match said connection configuration of said second physical layer.

72. (Currently Amended) The method of claim 64 further comprising generating a status signal to notify said first network device of a power status of said first physical layer.

Please cancel Claims 73-121.

122. (Currently Amended) A software method for saving energy in a first physical layer of a first network device, comprising:

generating a receive signal using a sense circuit when connection activity that exceeds a first threshold is detected by a receiver;

powering down said first physical layer when said receiver does not detect said connection activity for a first predetermined period to reduce power consumption of said first physical layer;

powering up said first physical layer and attempting to negotiate a connection with a second physical layer of a second network device using an autonegotiation circuit when said sense circuit generates said receive signal;

entering a sense state of said sense circuit;

powering down said first physical layer when said sense circuit is reset;

generating a first signal that resets said sense circuit after a first period using a first timer;

resetting said first timer when said receive signal is generated by said sense circuit;

powering down said first physical layer using said sense circuit if said first timer times out before autonegotiation is complete; and

returning said sense circuit to said sense state.

123. (Currently Amended) The software method of claim 122 further comprising triggering a link state when autonegotiation is complete and a link with said second physical layer is established.

124. (Original) The software method of claim 123 further comprising generating a link lost signal when said link is lost.

125. (Currently Amended)   A method for saving energy in a first physical layer of a first network device, comprising:

generating a receive signal using a sense circuit when connection activity that exceeds a first threshold is detected by a receiver;

powering down said first physical layer when said receiver does not detect said connection activity for a first predetermined period to reduce power consumption of said first physical layer;

powering up said first physical layer and attempting to negotiate a connection with a second physical layer of a second network device using an autonegotiation circuit when said sense circuit generates said receive signal;

entering a sense state of said sense circuit;

powering down said first physical layer when said sense circuit is reset,

wherein said sense circuit includes second timer for communicating with a transmitter and that is reset when said receive signal is generated.

126. (Original)   The software method of claim 125 further comprising turning on said transmitter and generating a pulse when said second timer times out.

127. (Original)   The software method of claim 126 further comprising turning off said transmitter and transitioning said sense circuit to said sense state after said transmitter generates said pulse.

128. (Original) The software method of claim 127 wherein said second timer has a second period that is longer than a period of fast link pulse bursts.

129. (Currently Amended) A software method for saving energy in a first physical layer of a first network device, comprising:

generating a receive signal using a sense circuit when connection activity that exceeds a first threshold is detected by a receiver; and

powering down said first physical layer when said receiver does not detect said connection activity for a first predetermined period to reduce power consumption of said first physical layer;

powering up said first physical layer and attempting to negotiate a connection with a second physical layer of a second network device using an autonegotiation circuit when said sense circuit generates said receive signal;

sensing a connection configuration of said second physical layer; and

adjusting a connection configuration of said first physical layer to said connection configuration of said second physical layer.

130. (Currently Amended) The software method of claim 122 further comprising generating a status signal to notify said first network device of a power status of said first physical layer.

Please cancel Claims 131-145.

146. (New) A physical layer device, comprising:

a sense circuit that senses activity on a medium;

an autonegotiation circuit that attempts to negotiate a link with a second physical layer device of a second network device after said sense circuit senses activity; and

an energy saving circuit that selectively provides power to said physical layer device based on said sensed activity, that times a first period which is reset when said sense circuit senses activity, and that powers down said physical layer device when said autonegotiation circuit fails to establish said link with said second physical layer device within said first period.

147.   (New) The physical layer device of Claim 146 further comprising a link circuit that communicates with said autonegotiation circuit and that triggers said link state when autonegotiation is complete and a link with said second physical layer device is established.

148.   (New) The physical layer device of Claim 147 wherein said link circuit generates a link lost signal when said link is lost.

149.   (New) A physical layer device, comprising:

a transmitter;

a receiver;

a sense circuit that communicates with said transmitter and said receiver, that senses activity on a medium and that times a second period which is reset when activity is sensed;

an autonegotiation circuit that attempts to negotiate a link with a second physical layer device of a second network device after said sense circuit senses activity; and

an energy saving circuit that selectively provides power to said physical layer device based on said sensed activity,

wherein said sense circuit turns on said transmitter after said second period, said transmitter generates a signal on the medium, and said sense circuit turns off said transmitter.

150. (New) The physical layer device of Claim 149 wherein said second period is longer than a period of fast link pulse bursts.

151. (New) A physical layer device, comprising:

a sense circuit that senses activity on a medium;

an autonegotiation circuit that attempts to negotiate a link with a second physical layer device of a second network device after said sense circuit senses activity;

an energy saving circuit that selectively provides power to said physical layer device based on said sensed activity; and

a switching circuit that senses a connection configuration of said second physical layer device and that adjusts a connection configuration of said physical layer

device to complement said connection configuration of said second physical layer device.

152. (New) The physical layer device of Claim 151 wherein said connection configuration is an MDI/MDIX connection configuration.

153. (New) A physical layer device, comprising:

sensing means for sensing activity on a medium;

autonegotiation means for attempting to negotiate a link with a second physical layer device of a second network device after said sensing means senses activity; and

energy saving means for selectively providing power to said first physical layer device based on said sensed activity, for timing a first period which is reset when said sensing means senses activity, and for powering down said physical layer device when said autonegotiation means fails to establish said link with said second physical layer device within said first period.

154. (New) The physical layer device of Claim 153 further comprising link means that communicates with said autonegotiation means for triggering a link state when autonegotiation is complete and said link with said second physical layer device is established.

155. (New) The physical layer device of Claim 154 wherein said link means generates a link lost signal when said link is lost.

156. (New) A physical device, comprising:

transmitting means for transmitting signals on a medium;

receiving means for receiving signals on said medium;

sensing means that communicates with said transmitting means and said receiving means for sensing activity received by said receiving means and for timing a second period that is reset when activity is sensed;

autonegotiation means for attempting to negotiate a link with a second physical layer device of a second network device after said sensing means senses activity; and

energy saving means for selectively providing power to said first physical layer device based on said sensed activity,

wherein said sensing means turns on said transmitting means after said second period, said transmitting means generates a pulse, and said sensing means turns off said transmitting means.

157. (New) The physical layer device of Claim 156 wherein said second period is longer than a period of fast link pulse bursts.

158. (New) A physical layer device, comprising:

sensing means for sensing activity on a medium;

autonegotiation means for attempting to negotiate a link with a second physical layer device of a second network device after said sensing means senses activity;

energy saving means for selectively providing power to said first physical layer device based on said sensed activity; and

switching means for sensing a connection configuration of said second physical layer device and for adjusting a connection configuration of said first physical layer device to complement said connection configuration of said second physical layer device.

159.　(New) The physical layer device of Claim 158 wherein said connection configuration is an MDI/MDIX connection configuration.

160.　(New) A method of operating a physical layer device, comprising:

sensing activity on a medium;

attempting to negotiate a link with a second physical layer device of a second network device after said sensing means senses activity;

selectively providing power to said first physical layer device based on said sensed activity;

timing a first period which is reset when said sensing means senses activity; and

powering down said physical layer device after failing to establish said link with said second physical layer device within said first period.

161.   (New) The method of claim 160 further comprising triggering a link state when autonegotiation is complete and said link with said second physical layer device is established.

162.   (New) The method of claim 161 further comprising generating a link lost signal when said link is lost.

163.   (New) A method for operating a physical layer device, comprising:

transmitting signals on a medium using a transmitter;

receiving signals on said medium;

sensing activity received and timing a second period which is reset when activity is sensed;

attempting to negotiate a link with a second physical layer device of a second network device after activity is sensed;

selectively providing power to said first physical layer device based on said sensed activity;

powering said transmitter and generating a signal on said medium after said second period; and

turning off said transmitter.

164.   (New) The method of claim 163 wherein said second period is longer than a period of fast link pulse bursts.

165.   (New) A method of operating a physical layer device, comprising:

sensing activity on a medium;

attempting to negotiate a link with a second physical layer device of a second network device after said activity is sensed;

selectively providing power to said first physical layer device based on said sensed activity;

sensing a connection configuration of said second physical layer device; and

adjusting a connection configuration of said first physical layer device to complement said connection configuration of said second physical layer device.

166.   (New) The method of Claim 165 wherein said connection configuration is an MDI/MDIX connection configuration.